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EXAMINER

NORRIS, JEREMY C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 03/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/026,761

Applicant(s)

SPREAFICO, SERGIO

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 6 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 13, 17, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,947,007 (hereafter Dew).

Dew discloses, referring to figure 3, a superconducting cable comprising at least a superconducting conductor (30) and a cryostat (38) positioned externally to the superconducting conductor, said cryostat including a thermal insulation enclosed between an inner and an outer coaxial tubes (see col. 3, lines 30-40), wherein a protecting element (30) is provided between the superconducting conductor and the inner tube of the cryostat [claim 1]. 2. Superconducting cable according to claim 1 wherein the protecting element provided between the superconducting conductor and the inner tube has a substantially constant thickness [claim 2], wherein the protecting element has a smooth internal surface [claim 3], wherein the protecting element has a firm and flexible external surface [claim 4], wherein the protecting element comprises one or more layers [claim 5], wherein the

protecting element is made of copper (see col. 3, lines 25-30) [claim 13], wherein the layers of the protecting element comprises at least one tape, wire, sheet or combination thereof [claim 14], which is cooled with liquid nitrogen at a temperature typically of from about 65 to about 90 K (see col. 3, lines 25-30) [claim 17].

Dew additionally discloses a method for protecting a superconducting cable comprising at least a superconducting conductor (28) and a cryostat (38) positioned externally to the to the superconducting conductor, said cryostat including a thermal insulation enclosed between an inner and an outer coaxial tubes (see col. 3, lines 30-40), from the mechanical damages to the superconducting material of the superconducting conductor due to the contact with the inner tube of the cryostat, which comprises the phase of providing a protecting element (30) between the superconducting conductor and the inner tube [claim 19].

Moreover, Dew discloses, a current transmission/distribution network comprising at least one superconducting cable comprising at least a superconducting conductor (28) and a cryostat (38) positioned externally to the to the superconducting conductor, said cryostat including a thermal insulation enclosed between an inner and an outer coaxial tubes (see col. 3, lines 30-40), wherein a protecting element (30) provided between the superconducting conductor and the inner tube of the cryostat [claim 20].

Claims 1-5, 14, 15, 17, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,502,783 (hereafter Aupoix).

Aupoix discloses, referring to figure 1, a superconducting cable comprising at least a superconducting conductor (1) and a cryostat positioned externally to the superconducting conductor, said cryostat including a thermal insulation (13) enclosed between an inner (12) and an outer coaxial tubes (14), wherein a protecting element (11) is provided between the superconducting conductor and the inner tube of the cryostat [claim 1], wherein the protecting element provided between the superconducting conductor and the inner tube has a substantially constant thickness [claim 2], wherein the protecting element has a smooth internal surface [claim 3], wherein the protecting element has a firm and flexible external surface [claim 4], wherein the protecting element comprises one or more layers [claim 5], wherein the layers of the protecting element comprises at least one tape, wire, sheet or combination thereof [claim 14], wherein the at least one tape, or sheet is positioned with juxtaposed windings or rims on the superconducting conductor [claim 15], which is cooled with liquid nitrogen at a temperature typically of from about 65 to about 90 K (see col. 2, lines 35-45) [claim 17].

Aupoix additionally discloses a method for protecting a superconducting cable comprising at least a superconducting conductor (1) and a cryostat (38) positioned externally to the to the superconducting conductor, said cryostat including a thermal insulation (13) enclosed between an inner (12) and an outer coaxial tubes (14), from the mechanical damages to the superconducting material of the superconducting conductor due to the contact with the inner tube of the cryostat,

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which comprises the phase of providing a protecting element (11) between the superconducting conductor and the inner tube [claim 19].

Moreover, Aupoix discloses, a current transmission/distribution network comprising at least one superconducting cable comprising at least a superconducting conductor (1) and a cryostat positioned externally to the to the superconducting conductor, said cryostat including a thermal insulation (13) enclosed between an inner (12) and an outer coaxial tubes (14), wherein a protecting element (11) provided between the superconducting conductor and the inner tube of the cryostat [claim 20].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aupoix.

Aupoix discloses the claimed invention except Aupoix does not specifically state that the thickness of the protecting element is equal or greater than about 0.2 mm [claim 7], wherein the thickness of the protecting element is comprised between about 0.2 mm and about 3 mm [claim 8], wherein the thickness of the protecting element is comprised between 0.4 mm and 1 mm [claim 9]. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to form the thickness of the layer in the range of between 0.4mm and 1 mm base on the size constraints of the final device. Furthermore, a change in size is generally recognized as being within the level or ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Moreover, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aupoix in view of US 4,966,886 (hereafter Hoshiko).

Aupoix discloses the claimed invention as described above with respect to claim 1, except Aupoix does not specifically state that protecting element comprises a material selected from polymeric materials, metals, carbon paper, kraft paper, and combination thereof [claim 10], wherein the protecting element is made of polymeric material [claim 11], wherein the protecting element is made of polytetrafluoroethylene [claim 12]. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use polytetrafluoroethylene as the material for the insulation

in the invention of Aupoix because it is well known in the art to use polytetrafluoroethylene as an insulator as evidenced by Hoshiko. Moreover, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.14.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aupoix in view of US 6,255,595 (hereafter Metra).

Aupoix discloses the claimed invention as described above except Aupoix does not specifically state that the superconducting material is an oxide of bismuth, lead, strontium, calcium, copper (i.e. BSCCO). However, BSCCO is a well known so-called high temperature superconducting material as evidenced by Metra (see col. 6, lines 30-35). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use BSCCO in the invention of Aupoix since it is well known in the art, as evidenced by Metra that BSCCO has high temperature superconducting properties. Moreover, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

***Allowable Subject Matter***

Claims 6 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



The following is a statement of reasons for the indication of allowable subject matter: Claim 16 states the limitation "which has a clamped head configuration." This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 6 states the limitation "wherein the protecting element is made of two layers, the inner being smooth and the outer being firm and flexible". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

|              |                     |
|--------------|---------------------|
| US 3,643,002 | Minnich,            |
| US 3,736,365 | Bobo et al.,        |
| US 4,845,308 | Womack, Jr. et al., |
| US 6,262,375 | Engelhardt et al..  |

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN  
March 17, 2003

  
RAYMOND CLINEO  
SUPERVISORY PATENT EXAMINER  
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